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EXAMINER	
WONG, LINDA	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/661,648	LIN ET AL.	
	Examiner	Art Unit	
	LINDA WONG	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 18-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,18-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/25/2008 has been entered.

Response to Arguments

2. Applicant's arguments filed 11/25/2008 have been fully considered but they are not persuasive.
3. Regarding claims 1,18, the applicant contends the prior arts Brooks et al and Alessi et al fails to disclose the limitations “a turbo decoder coupled to the burst demodulator and the DOCSIS MAC configured to decode the demodulated data from the burst demodulator ..."

The examiner respectfully disagrees. Brooks et al shows in Fig. 2 a burst demodulator coupled to a DOCSIS MAC and an ABS decoder. (labels 447,224,220) As explained in the office action, although Brooks et al does not disclose a turbo decoder, Alessi et al discloses "The DOCSIS standard should be enhanced to allow for the implementation of additional FEC schemes such as Turbo Product Codes. However, to provide efficient operation in a variety of environments, DOCSIS should allow for a variable FEC scheme that can adapt to the immediate RF environment

and can use different techniques as appropriate." (Conclusions and Recommendations) Alessi et al indicates the DOCSIS would be improved by using Turbo Product codes or Turbo decoding within a FEC component or decoder. Alessi et al also indicates improving the DOCSIS further by incorporating a variable FEC scheme allow for use of different techniques when appropriate. As explained in the "Error Correction for DOCSIS Application to SGLIU" section, Turbo Product Codes perform remarkably well within high BER environments. Thus, by having a variable FEC scheme for performing different techniques when appropriate, and given a high BER environment, Turbo Product Codes or Turbo decoding can be used for error correction for better performance. As indicates by Alessi et al, incorporating or upgrading the decoder connected to the Advanced System Bus (ABS decoder) as disclosed by Brooks et al to perform different techniques specifically for different environments, such as Turbo Product Codes or Turbo decoding within a high BER environment as disclosed by Alessi et al would add variety to the decoder as well as efficient operation in a variety of environments, increasing the probability of error correcting the signal received.

4. Regarding the dependent claims of claims 1,18, due to the rebuttal of claim 1, the rejections of the dependent claims stand as stated. Please review the rejection below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. **Claims 1-3** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fielding et al (US Patent No.: 6097706) in view of Brooks et al (US Publication No.: 20010039600) in view of Alessi et al (Publication Title: "Adapting the DOCSIS Protocols for Military Point to Multipoint Wireless Links").

   a. **Claim 1**,

      i. Fielding et al discloses

         - "a satellite earth station operably coupled to at least one data network" (Fig. 1, labels 12,10, Col. 1, lines 51-54) and
         - "a plurality of satellite modems" (Fig. 1, labels 11-14),
         - "each satellite modem of the plurality of satellite modems communicating in an upstream and a downstream data communication mode with the satellite earth station via at least one servicing satellite" (Fig. 1, labels 11-14 would have satellite modems and label 30 as the servicing satellite).

      ii. Fielding et al fails to disclose the components of the satellite modem.

      iii. Brooks et al discloses

         - "a host processor configured to receive data packets from the at least one data network and processing the Data Over Cable Service

Interface Specification (DOCSIS) management packets" (Fig. 1, labels 126,128,130,132 as data network links. Fig. 1, labels 102,104,122, paragraphs 37,38,40 any of which can be considered host processors as defined in the limitations. Paragraph 24 discloses the cable modem device 100 permits MAC functions to be programmed to support evolving standards such as DOCSIS.),

- "a DOCSIS Media Access Control (MAC) coupled to the host processor configured to encrypt a transmit packet data from the host memory, to frame data in MAC headers and inserting MAC timestamps in the transmit packet data" (Paragraph 24 discloses the cable modem device 100 permits MAC functions to be programmed to support evolving standards such as DOCSIS. Fig. 2, label 224, paragraph 42 discloses the functionalities of the MAC.)
- "a satellite modulator coupled to the DOCSIS MAC configured to modulate the encrypted transmit packet data to generate downstream output data for transmission to at least one of the plurality of satellite modems" (Fig. 2, label 118 as the modulator coupled to the MAC, label 224, Fig. 1, label 118 shows communication of the modulated output to cable media, wherein the cable media can be satellite communication as defined in paragraph 25.),
- "a burst demodulator coupled to the DOCSIS MAC configured to demodulate upstream input data to generate demodulated data" (Fig. 2,

label 114, Fig. 1, label 114 shows demodulating of the data from the cable media, wherein the cable media can be satellite communication as defined in paragraph 25. Fig. 2, label 224,226 and paragraph 42 shows the DOCSIS MAC is coupled to the demodulator.)

- "a decoder coupled to the burst demodulator and the DOCSIS MAC for configured to decode the demodulated data from the burst demodulator and to send the decoded data to the DOCSIS MAC, wherein the DOCSIS MAC sends DOCSIS management packets portion of the decoded data to the host processor and sends transmit packet data portion of the decoded data to the at least one data network". (Fig. 2, label 220 as the decoder, label 114 as the demodulator, label 224 as the MAC, Fig. 2, label 224 shows the CMAC sending upstream data to the modulator and out to the cable media as shown in Fig. 1. Fig. 2 also shows label 224 sending data to the APB, which sends data to the ASB and host processors, labels 102,104,122)
- It would have been obvious to one skilled in the art to use the satellite modem as disclosed by Brooks et al in the satellite earth stations for communication within the overall system as shown by Fielding et al so to provide information to transmit and decode the received information within the satellite system.

iv. Fielding et al and Brooks et al fails to disclose a turbo decoder. Alessi et al discloses such a limitation. (page 83 section Error correction of DOCSIS

Application to SGLIU.) It would have been obvious to one skilled in the art to use a turbo decoder in a DOCSIS application to satellite communication as disclosed by Alessi et al into Brooks et al so to provide high BER environments.

b. **Claim 2**, Brooks et al discloses "the data network is the Ethernet". (paragraph 25)

c. **Claim 3**, Alessi et al discloses "an RS Decoder for correcting errors of the decoded signal from the turbo decoder". (page 83, section Error Correction for DOCSIS Application to SGLIU discloses RS Viterbi codes are used wherein an RS decoder would be part of the turbo decoder.)

6. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Fielding et al in view of Brooks et al, further in view of Alessi et al as applied to claim 1 and further in view of Quigley et al (US Patent No.: 6650624).

a. **Claim 4**,

i. Fielding et al, Brooks et al and Alessi et al fails to disclose the limitations of claim 4.

ii. Quiley et al discloses

- "the DOCSIS MAC comprises: a SPI controller for supporting a downstream channel and at least one upstream channel" (Fig. 7a, label spi);

- "an encryption engine for encrypting the downstream data" (Fig. 7b, label upstream encryptor);
- "a decryption engine for decrypting the upstream data" (Fig. 7b, label downstream decryptor);
- "a formatter for formatting downstream data into Motion Picture Expert Group (MPEG) frames" (Fig. 6c, label downstream processor); and
- "a timing generator for inserting DOCSIS time stamps at programmable intervals" (Fig. 6c, label downstream processor). It would have been obvious to one skilled in the art at the time of the invention to use the DOCSIS Mac as disclosed by Quiley et al in Fielding et al in view of Brooks et al in view of Alessi et al's invention so to effectively process incoming and outgoing information.

7. **Claims 5,10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fielding et al in view of Brooks et al, further in view of Alessi et al as applied to claims 1 and further in view of Schmidl et al (US Publication No.: 20030206561).

   a. **Claim 5**,

      i. Fielding et al, Brooks et al and Alessi et al fails to disclose the components within the burst demodulator.

      ii. Schmidl et al discloses "an analog front end (AFE) circuit for accepting an analog input signal and generating a digital signal" (Fig. 10, label a/d)

- "a digital filter coupled to the AFE circuit for filtering the digital signal" (Fig. 10, label filter);
- "a quadrature amplitude (QAM) demodulator coupled to the digital filter for word detection of programmable length and pattern in a burst preamble of the digital signal" (Fig. 10, label demodulation, paragraph 143)
- "an adaptive equalizer coupled to the QAM demodulator for characterizing a RF channel response" (Fig. 10, label demodulation, paragraph 143); and
- "a decoder coupled to the adaptive equalizer" (Fig. 10, label decoder)

iii. Schmidl et al fails to disclose a "forward error correction (FEC) decoder". Alessi et al discloses such a limitation. (page 83, section error correction for DOCSIS application to SGLIU discloses FEC RS Viterbi codes and section variable FEC) It would have been obvious to one skilled in the art to incorporate the burst demodulator components as disclosed by Schmidl et al into Fielding et al in view of Brooks et al in view of Alessi et al's invention to properly receive and decode information.

b. **Claim 10**,

i. Fielding et al, Brooks et al, and Alessi et al fails to disclose the limitations of claim 10.

ii. Schmidl et al discloses "dual analog-to-digital converters (ADCs) for sampling a baseband IQ analog waveform" (Fig. 10, label a/d)

- "phase/frequency recovery circuit coupled to the dual ADCs for recovering the phase and frequency of the sampled waveform"; (Fig. 10, label symbol timing acquisition)
- "a variable demodulator for demodulating the recovered signal" (Fig. 10, label demodulation)
- "a turbo decoding circuit coupled to the demodulator for turbo decoding of the modulated signal" (Fig. 10, label decoder)."

iii. Schmidl et al fails to disclose "a forward error correction (FEC) decoder coupled to the demodulator for FEC decoding of the modulated signal".

iv. Alessi et al discloses such a limitation. (page 83, section error correction for DOCSIS application to SGLIU discloses FEC RS Viterbi codes and section variable FEC) It would have been obvious to one skilled in the art to incorporate the burst demodulator components as disclosed by Schmidl et al into Fielding et al in view of Brooks et al in view of Alessi et al's invention to properly receive and decode information.

8. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Fielding et al in view of Brooks et al, further in view of Alessi et al and further in view of Schmidl et al as applied to claim 5, further in view of Azenkot et al (US Patent No.: 7050419).

a. **Claim 6**, Fielding et al, Brooks, et al and Alessi et al fails to disclose "the FEC decoder comprises a programmable de-scrambler; a programmable reed-

Solomon (RS) decoder; a byte deinterleaver; and FEC interface circuit". Azenkot et al discloses such limitations. (Fig. 6, labels 244,246,128,248) It would have been obvious to one skilled in the art at the time of the invention to use an FEC decoder as disclosed by Azenkot et al into Fielding et al in view of Brooks et al in view of Alessi et al's invention so to provide an efficient FEC decoder.

9. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Fielding et al in view of Brooks et al, further in view of Alessi et al and further in view of Schmidl et al as applied to claim 5, further in view of Geile (US Patent No.: 7310522).
   a. **Claim 7**,
      i. Fielding et al, Brooks et al and Alessi et al fails to disclose the limitations of claim 7.
      ii. Geile discloses "the adaptive equalizer includes an Ingress cancellation circuit for canceling ingress noise and removing inter-symbol interference". (Fig. 26, label 112) It would have been obvious to one skilled in the art to use an Ingress filter as disclosed by in Geile into Fielding et al in view of Brooks et al in view of Alessi et al's invention so to eliminate ingress noise.

10. **Claims 8,9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fielding et al in view of Brooks et al, further in view of Alessi et al and further in view

of Schmidl et al as applied to claim 5, further in view of Quiley et al (US Patent No.: 6650624).

a. **Claim 8**, Fielding et al, Brooks et al, Alessi et al and Schmidl et al fails to disclose the limitation of claim 8. Quiley et al discloses "a microcontroller for programming of the burst demodulator" (Fig. 9, label 520). It would have been obvious to one skilled in the art to adjust the burst demodulator as disclosed by Quiley et al in Fielding et al in view of Brooks et al in view of Alessi et al in view of Schmidl et al's invention to increase robustness.

b. **Claim 9**, Fielding et al, Brooks et al, Alessi et al and Schmidl et al fails to disclose the limitation of claim 9. Quiley et al discloses "a channel B input interface configured to accept a direct RF analog input" (Fig. 5b, label RF tuner).

11. **Claims 11-13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Fielding et al in view of Brooks et al, further in view of Alessi et al and further in view of Schmidl et al as applied to claim 10, further in view of Kim (Publication Title: "Turbo-coded OFDM System for a Mobile Satellite Broadcasting System").

a. **Claim 11**, Fielding et al, Brooks et al and Alessi et al fails to disclose the limitations of claim 11. Kim discloses "the turbo decoding circuit comprises: a Viterbi decoder, a synchronization and deinterleaver, and a reed-Solomon (RS) decoder." (Fig. 1b, label decoder 1, decoder 2, synchronization and deinterleaver) It would have been obvious to one skilled in the art at the time of

the invention to incorporate the components as disclosed by Kim into Fielding et al in view of Brooks et al in view of Alessi et al's invention so to provide appropriate turbo decoding.

b. **Claim 12**, Schmidl et al discloses "a microcontroller for system configuration, control, and monitoring functions". (Fig. 19a)

c. **Claim 13**, Brooks et al discloses "a downstream circuit coupled to the DOCSIS MAC for reformatting the data into a byte-wide stream and forwarding the bytes to the satellite modulator." (Fig. 2, labels 224 and 118)

12. **Claims 14-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Quiley et al (US Patent No.: 6650624) in view of Alessi et al (Publication Title: "Adapting the DOCSIS Protocols for Military Point to Multipoint Wireless Links").

a. **Claim 14,**

i. Quiley et al discloses

- "receiving a radio frequency (RF) upstream signal" (Fig. 9, label RF)
- "demodulating the received RF signal to generate soft decision quadraphase-shift keying (QPSK) output signal" (Fig. 9, label 448, Col. 9, lines 18-21)
- "decoding the output signal by a Reed-Solomon (RS) decoder" (Fig. 9, label decoder);
- "assembling DOCSIS packets in the RS decoded signal" (Fig. 9, label 60, Fig. 7a shows a docsis and message processor); and

- "forwarding the assembled data to a data network" (Fig. 7a, label transmitter)

ii. Quiley et al fails to disclose "turbo decoding the output signal". Alessi discloses using a turbo decoder with RS decoding. (page 83, section Error correction of DOCSIS Application to SGLIU.) It would have been obvious to one skilled in the art to use a turbo decoder in a DOCSIS application to satellite communication as disclosed by Alessi et al into Quiley et al so to provide high BER environments.

b. **Claim 15**,

i. Quiley et al discloses

- "receiving DOCSIS-compliant data encoded with a Reed-Solomon encoding scheme from the data network" (Fig. 5b, label 263),
- "encoding the DOCSIS-compliant data" (Fig. 7b, label upstream encryptor);
- "generating baseband-frequency in-phase and quadrature-phase components of the encoded DOCSIS-compliant data" (Fig. 10, labels 538,540,462)
- "converting the encoded DOCSIS-compliant data to one or more analog signals for downstream satellite data transmission" (Fig. 21, label from upstream channel, 1150 and label to Mac, , Fig. 5b, output from label 272)

ii. Quiley et al fails to disclose turbo encoding. Alessi discloses using a turbo decoder with RS decoding. (page 83, section Error correction of DOCSIS Application to SGLIU.) It would have been obvious to one skilled in the art to use a turbo decoder in a DOCSIS application to satellite communication as disclosed by Alessi et al into Quiley et al so to provide high BER environments.

c. **Claim 16**, Quiley et al discloses "interpolating the baseband-frequency in-phase and quadrature-phase components to a common sample rate that is higher than a plurality of DOCSIS-compliant bandwidth sample rates". (Fig. 82, label 351, Col. 74, lines 37-38)

d. **Claim 17**,

i. Quiley et al discloses

- "digitally pre-compensating the common sample rate baseband-frequency in-phase and quadrature-phase components for impairments encountered in one or more subsequent processes" (Fig. 87);
- "converting digitally pre-compensated common sample rate baseband-frequency in-phase and quadrature-phase components to one or more analog signals" (Fig. 61, label analog front end)

13. **Claims 18-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al (US Publication No.: 20010039600) in view of Alessi et al (Publication

Title: "Adapting the DOCSIS Protocols for Military Point to Multipoint Wireless Links").

a. **Claim 18**,

i. Brooks et al discloses

- "a host computer coupled to a data network for receiving data packets from a data network and processing the Data Over Cable Service Interface Specification (DOCSIS) management packets" (Fig. 2, label ASB, paragraph 36)
- "a demodulator/Media Access Control (MAC) card coupled to the host processor" (Fig. 2, label 114 as the demodulator, label 224 as the MAC) "including a DOCSIS MAC coupled to the host computer" (Fig. 2, label abs and paragraph 36) "for encrypting transmit packet data from the data network responsive to the processed DOCSIS management packets from the host computer" (paragraph 42),
- "a burst demodulator for demodulating upstream data received from a satellite modem" (Fig. 2, label 114), and
- "a decoder coupled to the burst demodulator and the DOCSIS MAC for decoding the demodulated data from the burst demodulator and sending the decoded data to the DOCSIS MAC, wherein the DOCSIS MAC sends DOCSIS management packets portion of the decoded data to the host computer and sends transmit packet data portion of the decoded data to the data network"; (Fig. 2, label 220 as the decoder,

label 114 as the demodulator, label 224 as the MAC, Fig. 2, label 224 shows the CMAC sending upstream data to the modulator and out to the cable media as shown in Fig. 1. Fig. 2 also shows label 224 sending data to the APB, which sends data to the ASB and host processors, labels 102,104,122) and

- "a satellite modulator coupled to the demodulator/MAC card for modulating the encrypted transmit packet data from the DOCSIS MAC to generate downstream output data for transmission to the satellite modem". (Fig. 2, label 118, paragraphs 25 and 42)

ii. Brooks et al fails to disclose "a turbo decoder".

iii. Alessi et al discloses such a limitation. (page 83 section Error correction of DOCSIS Application to SGLIU.) It would have been obvious to one skilled in the art to use a turbo decoder in a DOCSIS application to satellite communication as disclosed by Alessi et al into Brooks et al so to provide high BER environments.

b. **Claim 19**, Brooks et al discloses "the demodulator/MAC card is embodied in a pluggable circuit board card resident in a PCI chassis and the host computer is a personal computer (PC). (paragraph 36)

c. **Claim 20**, Brooks et al discloses "the data network is the Ethernet" (paragraph 44).

d. **Claim 21**, Brooks et al discloses "the DOCSIS MAC and the PC communicate via a PCI bus". (paragraph 36)

e. **Claim 22**, Alessi et al discloses "an RS Decoder for correcting errors of the decoded signal from the turbo decoder". (page 83, section Error Correction for DOCSIS Application to SGLIU discloses RS Viterbi codes are used wherein an RS decoder would be part of the turbo decoder.)

14. **Claim 23** is rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al in view of Alessi et al as applied to claim 18 and further in view of Quigley et al (US Patent No.: 6650624).

a. **Claim 23**,

i. Brooks et al and Alessi et al fails to disclose the limitations of claim 23.

ii. Quiley et al discloses

- "the DOCSIS MAC comprises: a SPI controller for supporting a downstream channel and at least one upstream channel" (Fig. 7a, label spi);
- "an encryption engine for encrypting the downstream data" (Fig. 7b, label upstream encryptor);
- "a decryption engine for decrypting the upstream data" (Fig. 7b, label downstream decryptor);
- "a formatter for formatting downstream data into Motion Picture Expert Group (MPEG) frames" (Fig. 6c, label downstream processor); and
- "a timing generator for inserting DOCSIS time stamps at programmable intervals" (Fig. 6c, label downstream processor). It would have been

obvious to one skilled in the art at the time of the invention to use the DOCSIS Mac as disclosed by Quiley et al in Brooks et al in view of Alessi et al's invention so to effectively process incoming and outgoing information.

15. **Claims 24,27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al in view of Alessi et al as applied to claim 18 and further in view of Schmidl et al (US Publication No.: 20030206561).

a. **Claim 24**,

i. Brooks et al and Alessi et al fails to disclose the components within the burst demodulator.

ii. Schmidl et al discloses "an analog front end (AFE) circuit for accepting an analog input signal and generating a digital signal" (Fig. 10, label a/d)

- "a digital filter coupled to the AFE circuit for filtering the digital signal" (Fig. 10, label filter);
- "a quadrature amplitude (QAM) demodulator coupled to the digital filter for word detection of programmable length and pattern in a burst preamble of the digital signal" (Fig. 10, label demodulation, paragraph 143)
- "an adaptive equalizer coupled to the QAM demodulator for characterizing a RF channel response" (Fig. 10, label demodulation, paragraph 143); and

- "a decoder coupled to the adaptive equalizer" (Fig. 10, label decoder)

b. Schmidl et al fails to disclose a "forward error correction (FEC) decoder". Alessi et al discloses such a limitation. (page 83, section error correction for DOCSIS application to SGLIU discloses FEC RS Viterbi codes and section variable FEC) It would have been obvious to one skilled in the art to incorporate the burst demodulator components as disclosed by Schmidl et al into Brooks et al in view of Alessi et al's invention to properly receive and decode information.

c. **Claim 27**,

i. Brooks et al, and Alessi et al fails to disclose the limitations of claim 10.

ii. Schmidl et al discloses "dual analog-to-digital converters (ADCs) for sampling a baseband IQ analog waveform" (Fig. 10, label a/d)

- "phase/frequency recovery circuit coupled to the dual ADCs for recovering the phase and frequency of the sampled waveform"; (Fig. 10, label symbol timing acquisition)
- "a variable demodulator for demodulating the recovered signal" (Fig. 10, label demodulation)
- "a turbo decoding circuit coupled to the demodulator for turbo decoding of the modulated signal" (Fig. 10, label decoder)."

iii. Schmidl et al fails to disclose "a forward error correction (FEC) decoder coupled to the demodulator for FEC decoding of the modulated signal".

iv. Alessi et al discloses such a limitation. (page 83, section error correction for DOCSIS application to SGLIU discloses FEC RS Viterbi codes and section

variable FEC) It would have been obvious to one skilled in the art to incorporate the burst demodulator components as disclosed by Schmidl et al into Brooks et al in view of Alessi et al's invention to properly receive and decode information.

16. **Claim 25** is rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al, further in view of Alessi et al as applied to claim 18, further in view of Azenkot et al (US Patent No.: 7050419).
    a. **Claim 25**, Brooks, et al and Alessi et al fails to disclose "the FEC decoder comprises a programmable de-scrambler; a programmable reed-Solomon (RS) decoder; a byte deinterleaver; and FEC interface circuit". Azenkot et al discloses such limitations. (Fig. 6, labels 244,246,128,248) It would have been obvious to one skilled in the art at the time of the invention to use an FEC decoder as disclosed by Azenkot et al into Fielding et al in view of Brooks et al in view of Alessi et al's invention so to provide an efficient FEC decoder.

17. **Claim 26** is rejected under 35 U.S.C. 103(a) as being unpatentable over F Brooks et al in view of Alessi et al as applied to claim 18, further in view of Geile (US Patent No.: 7310522).
    a. **Claim 26**,
        i. Brooks et al and Alessi et al fails to disclose the limitations of claim 7.
        ii. Geile discloses "the adaptive equalizer includes an Ingress cancellation circuit for canceling ingress noise and removing inter-symbol interference".

(Fig. 26, label 112) It would have been obvious to one skilled in the art to use an Ingress filter as disclosed by Geile into Brooks et al in view of Alessi et al's invention so to eliminate ingress noise.

18. **Claim 28** is rejected under 35 U.S.C. 103(a) as being unpatentable over Brooks et al in view of Alessi et al and further in view of Schmidl et al as applied to claim 27, further in view of Kim (Publication Title: "Turbo-coded OFDM System for a Mobile Satellite Broadcasting System").

a. **Claim 28**, Brooks et al and Alessi et al fails to disclose the limitations of claim 11. Kim discloses "the turbo decoding circuit comprises: a Viterbi decoder, a synchronization and deinterleaver, and a reed-Solomon (RS) decoder." (Fig. 1b, label decoder 1, decoder 2, synchronization and deinterleaver) It would have been obvious to one skilled in the art at the time of the invention to incorporate the components as disclosed by Kim into Brooks et al in view of Alessi et al's invention so to provide appropriate turbo decoding.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linda Wong whose telephone number is 571-272-6044. The examiner can normally be reached on 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Linda Wong
12/21/2008

/David C. Payne/

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